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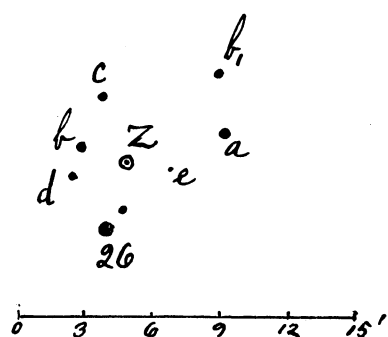
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The region
about Z Cygni.

sure of receiving early warnings of the appearance of a new comet, etc., and orbits and ephemerides can now be quickly computed and distributed. To any one who recollects the state of such matters previous to 1873, the improvement is most striking, and it is almost entirely due to the original suggestion of Dr. PETERS, to its prompt adoption by the Smithsonian Institution, and to the subsequent devices and able editorship of Messrs. CHANDLER and RITCHIE.*

ASTRONOMICAL OBSERVATIONS.

Made by TORVALD KÖHL, at Odder, Denmark, in the years 1894-95.

VARIABLE STARS.

Z Cygni.

1894.

January	1: $Z < e.$	August	25: $< d.$
	12: $< e.$	September	1: almost = e.
February	1: invisible.		6: $< e.$
	13: invisible.		23: id.
March	25: a little $< e.$		29: id.
April	6: $\begin{cases} > e. \\ < d. \end{cases}$	October	18: invisible.
	8: almost = d.		26: id.
	9: id.	November	10: id.
	24: $\begin{cases} = b. \\ \text{a little } < a. \end{cases}$		16: id.
	30: = a.		22: id.
May	24: $\begin{cases} > a. \\ < 26. \end{cases}$		30: id.
June	3: id.	December	12: id.
July	29: $\begin{cases} \text{perhaps a little} \\ < d. \end{cases}$		14: id.
			16: $< e.$
			30: = e.

* European telegrams of the sort were formerly distributed by the Imperial Academy of Sciences of Vienna, according to a code devised by Professor KARLINSKI, of Cracow, in 1865. (*Ast. Nach.*, Vol. LXV, col. 31; *ibid.*, No. 1785.) The service was much neglected, as may be seen by the history of the new star discovered by SCHMIDT in 1876. It was of the utmost importance that this star should be observed at once. Accordingly, Dr. SCHMIDT notified Vienna on November 24th by telegraph. The first account of the discovery was printed by the *Astronomische Nachrichten* on December 23d (a month late). The first news reached Berlin on December 3d, and so on. Half the astronomical energy of Europe was wasted for lack of a little administrative ability exerted according to an intelligent system.

1895.

January	1: a little > e.	September	26: $\begin{cases} > e. \\ < d. \end{cases}$
	21: = b.		
	26: = a.	October	12: $\begin{cases} > d. \\ < c. \end{cases}$
February	10: id.		30: = b.
	14: $\begin{cases} < a. \\ > b. \end{cases}$	November	7: perhaps < a.
	21: = b.		13: id.
April	12: a little > d.		18: a little < a.
	16: = d.		19: id.
	25: $\begin{cases} < d. \\ > e. \end{cases}$		26: id.
August	16: invisible.		29: $\begin{cases} < a. \\ > b. \end{cases}$
	24: < e.	December	7: = b.
September	9: = e.		8: id.
	13: perhaps > e.		14: id.
	20: a little > e.		

*X² Cygni.**

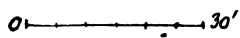
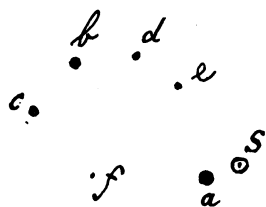
1894.

January	12: X ² = a.	November	10: X ² = f.
March	25: = k.		16: = b.
April	6: < k.		22: $\begin{cases} > a. \\ < A. \end{cases}$
July	29: id.		29: > A.
August	23: < i.		30: $\begin{cases} > A. \\ < X^1. \end{cases}$
September	1: very faint.		
	23: = i.	December	14: > X ¹ .
	29: = h.		16: id.
October	18: = g.		27: id.
	26: id.		30: id.

1895.

January	1: X ² > X ¹ .	October	30: X ² < k.
	21: $\begin{cases} < X^1. \\ > A. \end{cases}$	November	13: = i.
	26: id.		18: = h.
February	10: id.		19: id.
August	16: < k.		27: id.
	24: invisible.		29: a little < g.
September	9: id.	December	7: = g.
October	12: id.		8: id.
			14: id.

* Vide *Publications A. S. P.*, Nos. 33 and 34, page 37.



*The region
about S Ursae maj.*

The Stars A and B, near X² Cygni.

By examination of the region around *X² Cygni*, I have several years ago suspected a slight variation of the star *A* when compared with *B*,* as it is seen from the following estimations:

1878, March	4: A < B.	1895, January	1: A > B.
April	21: A > B.		21: A = B.
1879, March	15: A < B.		26: A = B.
1891, August	30: A < B.	February	10: A = B.
1894, November	22: A > B.	November	29: A < B.
	30: A > B.	December	7: A = B.
December	12: A < B.		8: A > B.
	14: A = B.		14: A = B.
	16: A < B.		
	30: A = B.		

X Cygni.

1895.

September	26: X	{	< a*.	November	7: X	a little < a.
			> b.		13:	= a.
October	12:		a little > a.		18:	a little > a.
	17:		id.		19:	id.
	20:		= a.		25:	a little < a.
	30:	{	< a.		29:	< a.
			> b.	December	7:	> a.
					14:	{
						< a.
						only a little
						> b.

S Ursæ majoris.

1894.

January	26: S = d.	September	23: S	a little < e.
February	1: = e.		29:	< e.
	13: a little < e.	October	1: id.	
	21: id.		18: = f.	
March	2: = f.		26: < f.	
	14: < f.	November	10: id.	
	24: id.		16: id.	
	29: invisible.		22: id.	
August	23: = d.		30: invisible.	
September	1: id.	December	14: id.	
	3: perhaps > d.		16: very faint.	
	8: = d.		27: < f.	
	15: id.			

* a indicates the next bright preceding, b the next following star.

1895.

January	26: S = e.	September	6: S invisible.
February	10: id.		9: id.
March	2: perhaps > d.		13: a little < e.
	17: $\begin{cases} > d \\ < b \end{cases}$ (b = c).		14: id.
	20: = c (b > c).		20: = e.
	27: $\begin{cases} \text{almost} = c \\ (b > c). \end{cases}$	October	12: = d.
	29: id.		17: id.
April	2: id.		30: > d, < c.
	9: $\begin{cases} < c. \\ > d. \end{cases}$	November	7: = d.
	14: = d.		13: > d.
	22: id.		18: a little < c.
August	16: = f.		19: id.
	24: > f, < e.		25: < c.
	31: a little < e.		29: a little > d.
		December	7: = d.
			8: < d.
			14: a little < e.

*T Ursæ majoris.**

1894.

January	12: T = b.	September	15: T a little > a.
	26: $\begin{cases} < c, \text{ nearly} \\ = d. \end{cases}$		23: $\begin{cases} \text{quite a little} \\ > a. \end{cases}$
February	1: = d.		29: = a.
	13: = e.	October	1: id.
	21: < e, > f.		18: = c.
March	2: = f.		26: a little < d.
	14: < f.	November	10: a little < e.
	24: id.		16: = f.
	29: invisible.		22: id.
April	9: invisible.		30: < g.
August	23: > a.	December	14: invisible.
September	1: id.		16: id.
	3: id.		27: id.
	8: id.		

* Vide *Publications A. S. P.*, No. 22, page 63.

1895.

January	26: T invisible.	September 13: T very faint.
February	10: id.	14: id.
March	2: < g.	20: id.
	17: = f.	October 12: < f.
	20: id.	17: id.
	27: = d.	30: id.
	29: a little > d.	November 7: id.
April	2: > d, < c.	13: = f.
	9: < b, > c.	18: a little < e.
	14: = b.	19: id.
	22: a little > b.	25: < d, > e.
August	16: < f.	29: = d.
	24: invisible.	December 7: = a.
	31: id.	8: id.
September	6: id.	14: a little > a.
	9: id.	

SHOOTING STARS.

No.	Time, P. M.	Begin- ning.	End.	Magni- tude.	NOTE.
1894.					
1	Aug. 9. 10 ^h 0 ^m 0 ^s	255+16	252+13	2	Red Meteor, train.
2	5 30	.	26+15	♀	
3	8 30	261+39	255+35	3	
4	19 15	318+37	305+35	4	Streak.
5	22 0	260+47	246+27	3	
6	22 30	312+48	292+42	2	Train.
7	24 45	265+13	263+ 0	2	
8	39 0	27+60	17+57	2	
9	42 0	299— 7	297—12	2	
10	47 0	60+50	66+44	2	
11	49 30	350+34	344+24	2	Train.
12	57 30	7+17	3+ 7	1	
13	58 30	8+25	356+14	3	
14	11 3 30	50+62	74+68	♀	
15	19 0	282+ 7	273— 4	1	
16	23 30	354+44	332+38	2	Red Meteor, train.
17	30 0	336+24	345+25	3	
18	33 15	295+42	285+29	1	
19	34 45	305+15	295+ 3	1	
20	35 30	227+32	230+16	♀	
21	36 0	267+ 8	267— 1	♀	Train.
22	41 45	344+11	329+ 1	2	
23	52 30	328+41	355+34	2	
24	Aug. 10. 10 26 30	352+27	345+18	3	
25	33 0	276+55	259+36	3	

SHOOTING STARS—Continued.

No.	Time, P. M.	Begin- ning.	End.	Magni- tude.	NOTE.
	1894.	° °	° °		
26	Aug. 10. 10 ^h 34 ^m 30 ^s	342+23	328+8	1	Train.
27	36 °	4+5	360+2	1	
28	37 40	320+44	303+35	2	Streak.
29	39 40	300+19	292+6	1	id.
30	40 50	325+17	314+5	1	Train.
31	50 10	318-11	306-18	2	id.
32	56 °	6+18	360+8	1	
33	57 °	285+15	275+7	1	Streak.
34	II 3 40	356+9	352+5	1	
35	5 10	295+37	284+28	2	
36	6 30	3+16	358+7	2	
37	9 °	5+23	358+11	2	id.
38	11 10	330+56	309+45	2	Train.
39	16 20	254+9	253-2	1	
40	20 30	292+50	277+35	2	
41	21 °	15+33	354+17	1/4 C	Sparkling Meteor.
42	29 45	292-1	286-11	1	
43	33 10	358+33	350+24	2	
44	41 25	316+23	306+11	3	
45	41 30	340-18	339-21	1	
46	47 30	4-10	1-4	2	
	A. M.				
47	Aug. 11. 12 4 40	288-4	285-10	1	
48	5 40	5+15	359+5	2	
49	7 30	8+59	354+55	1	
50	8 50	236+71	231+52	1	
51	20 40	345-11	344-15	1	
52	29 30	298-11	297-17	2	
	P. M.				
53	10 55 °	350+15	341+11	2	
54	11 11 21	314+42	301+37	3	
55	20 10	330+62	311+59	2	
56	23 30	14+54	360+54	2	
57	30 40	286+18	286+7	2	
58	32 40	. . .	7-1	2	
59	46 45	360+11	351+2	1	
60	51 30	322+15	312+26	4	
61	56 10	333-11	333-15	2	
62	59 30	8+41	348+32	1	Train.
	A. M.				
63	Aug. 12. 12 6 °	356+30	346+19	2	id.
64	8 °	5+19	357+10	2	
65	11 45	338+0	18+11	2	
66	20 °	310+40	297+30	2	
67	22 8	301+6	295-5	1	
68	22 15	317+0	317-11	1	
69	27 20	340+18	326+4	1	Train.
70	30 10	297+14	290+4	3	

SHOOTING STARS—Continued.

No.	Time, A. M.	Begin- ning.	End.	Magni- tude.	NOTE.
	1894.	° °	° °		
71	Aug. 12. 12 ^h 32 ^m 0 ^s 1895.	324—9	313—17	1	
72	Jan. 25. 9 25 0	125+18	135+7	$\frac{1}{4}\odot$	{ Red Meteor. Fireball. Train in several sections. Train.
73	Aug. 10. 9 36 0	.	303—9	$\frac{1}{2}\odot$	
74	44 0	266+46	248+13	$\frac{1}{4}$	
75	46 0	285+4	282—8	$\frac{1}{4}$	
76	10 16 15	266+23	255+8	3	Very fast.
77	22 0	319+5	300—6	1	
78	38 15	292—9	288—13	1	
79	11 2 0	341+10	337+5	1	
80	3 0	345+61	315+48	1	Very accurate.
81	12 30	261+18	254+7	1	Train. Accurate. Train. Extinction near $\odot$. Very accurate.
82	20 0	317+5	301—5	1	
83	39 0	357+34	340+20	$\frac{1}{4}$	
84	44 50	25+22	17+6	$\frac{1}{4}$	
85	55 0	306+50	284+36	2	
86	58 30	11+44	350+34	1	Accurate.
87	58 33	335—5	326—16	$\odot$	
	A. M.				
88	Aug. 11. 12 1 20	213+57	215+40	2	
	P. M.				
89	Aug. 12. 9 52 0	287+40	276+34	3	Train.
100	54 30	261+11	255+4	3	
101	10 1 0	297+39	247+23	2	
102	9 15	306+26	296+8	$\frac{1}{4}$	
103	10 45	327+17	223+1	1	
104	12 0	282+13	271+4	2	Fast.
105	15 30	297+41	259+37	2	
106	24 50	304+36	291+15	1	Train. Very short path in direc- tion from <i>Polaris</i> . Very slow.
107	29 0	339+10	332+1	1	
108	33 0	.	15+66	$\odot$	
109	35 50	.	40+56	1	
110	42 40	319+2	333+5	3	
111	48 30	333+10	326—1	2	
112	51 0	328+15	320+4	2	
113	11 9 10	293+10	296—5	2	
114	36 0	28+65	40+61	2	
115	42 45	26+24	20+14	$\odot$	
116	47 0	273+15	263+5	$\odot$	
117	Sept. 26. 8 18 0	298+27	280+1	$\odot$	

No. 62 is also observed at Copenhagen ($259^{\circ} + 54^{\circ} + \longrightarrow$
 $248^{\circ} + 33^{\circ}$, 2 Magnitude).

No. 63 is also observed at Copenhagen ($271^{\circ} + 40^{\circ} + \longrightarrow$
 $264^{\circ} + 25^{\circ}$, 3 Magnitude).

No. 65 is also observed at Copenhagen ($286^{\circ} + 14^{\circ} + \longrightarrow$ $259^{\circ} + 36^{\circ}$, ♀ Magnitude).

No. 69 is also observed at Copenhagen ($279^{\circ} + 26^{\circ} + \longrightarrow$ $271^{\circ} + 11^{\circ}$, 3 Magnitude).

No. 82 is also observed at Copenhagen ($268^{\circ} + 14^{\circ} + \longrightarrow$ $267^{\circ} + 2^{\circ}$, 2 Magnitude).

THESE FIVE METEORS HAVE GIVEN THE FOLLOWING RESULTS :

No.	Beginning.			End.			Real Length of the Path.
	<i>h</i>	λ	ϕ	<i>h</i>	λ	ϕ	
		$^{\circ}$ /	$^{\circ}$ /		$^{\circ}$ /	$^{\circ}$ /	β
62	110	1 4	55 55	81	1 44	55 44	54
63	109	1 11	55 37	87	1 35	55 30	37
65	115	1 20	54 30	54	0 55	55 39	148
69	118	1 44	55 15	88	2 15	55 3	50
82	52	2 8	55 24	45	2 30	55 16	28

Odder is situated in $2^{\circ} 25'$ W. longitude from Copenhagen, and $55^{\circ} 58'$ N. latitude.

h and β indicate kilometres; λ is W. longitude from Copenhagen; ϕ N. latitude.

Among other observations, the following may be noted :

1894. February 23d, a sun-spot was seen with *the naked eye*.
May 4th, 9 P.M., the Comet *Gale* (6th magnitude) was discovered $1\frac{1}{4}^{\circ}$ N. W. from 30 *Monocerotis*.

1895. August 9th, β *Ursae min.* was seen at 9^h P. M. by almost daylight with *the naked eye*.

November 28th, 5^h 30^m A. M., Comet *Perrine*, $14^{\text{h}} 14^{\text{m}} 28^{\text{s}} - 5^{\circ} 8'$.

November 29th, 6^h 30^m A. M., Comet *Perrine*, $14^{\text{h}} 17^{\text{m}} 18^{\text{s}} - 5^{\circ} 58'$.

November 30th, 6^h 30^m A. M., Comet *Perrine*, $14^{\text{h}} 21^{\text{m}} 18^{\text{s}} - 6^{\circ} 53'$.

ODDER, DENMARK, January 3, 1896.